

## Division Of Radio Frequency (Spectrum Radio Communication Frequencies)

Radio Frequency An electromagnetic wave with frequencies from 3Hz to 3000GHz (3THz). Radio waves are widely used in telecommunications. And in use must no interference. It is strictly controlled by the laws of each country. It is coordinated by a middle name organization. International Telecommunication Union (ITU)

Radio Frequency Allocation. It has been allocated by the ITU for use in different telecommunications technologies. The use of radio frequencies must be authorized. And some popular radio frequencies. Like the frequency used in the phone. Frequency Band Radio Service Or television station. More than 40 telecommunication services are controlled by the ITU. Must request permission and pay rent or concession. Can be used. The ITU has been divided by the frequency of usage. Or the same purpose. It is divided into 12 Frequency bands.

No.	Acronym	Frequency band	wavelength
1	ELF	3-30 Hz	10,000km - 100,000km
2	SLF	30 Hz - 300 Hz	1,000km - 10,000km
3	ULF	300 Hz - 3000 Hz	100km - 1,000km
4	VLF	3 kHz - 30 kHz	10km - 100 km
5	LF	30 kHz - 300 kHz	1 km - 10 km
6	MF	300 kHz - 3000 kHz	100m - 1000m
7	HF	3 MHz to - 30 MHz	10m - 100m
8	VHF	30 MHz - 300 MHz	1m - 10m
9	UHF	300 MHz - 3000 MHz	10cm - 100cm
10	SHF	3 GHz - 30 GHz	1cm - 10cm
11	EHF	30 GHz - 300 GHz	1 mm - 10mm
12	THF	300 GHz - 3000 GHz	0.1mm - 1mm

Table 1 Table of ITU Radio Bands

Name of Frequency Band	Acronym	ITU band	Frequency Range	wavelength	Usage Condition
Extremely low frequency	ELF	1	3-30 Hz	100,000 – 10,000 km	Communication with the submarine
Super low frequency	SLF	2	30-300 Hz	10,000km – 1,000km	Communication with the submarine
Ultra Low Frequency	ULF	3	300– 3,000 Hz	1,000km – 100km	Underwater Communication, Internal Mining Communication
Very Low Frequency	VLF	4	3-30 kHz	100km – 10km	Navigation, time signal, underwater communication, wireless heart rate monitor, geophysical
Low Frequency	LF	5	30-300 kHz	10km – 1km	Navigation system, time signal, AM-radio, RFID, amateur radio
Medium Frequency	MF	6	300– 3,000 kHz	1km – 100m	Medium-Wave AM radio, amateur radio, avalanche alert
High Frequency	HF	7	3-30 MHz	100m – 10 m	Radio SW, radio CB, amateur radio, radio aviation, radar, automatic link link
Very High Frequency	VHF	8	30– 300 MHz	10m – 1m	FM radio, television, ground-to-air communications And between aircraft, terrestrial communications to marine mobile stations, amateur radio, weather reports, weather
Ultra High Frequency	UHF	9	300– 3,000 MHz	1m – 10cm	Radio, microwave, microwave, radio astronomy, mobile phone, GPS, wireless LAN, bluetooth, sigma, amateur radio, satellite radio, remote control, GMRS radio, FRS radio, ADS-B automatic aircraft
Super High Frequency	SHF	10	3-30 GHz	10cm – 10mm	Microwave communication, radio astronomy, DSRC technology, radar, satellite image transmission and transmission, DBS broadcasting, amateur radio, satellite radio, wireless LAN
Extremely High Frequency	EHF	11	30– 300 GHz	10mm – 1mm	Microwave radios, microwaves, direct wave energy, millimeter wave scanners, wireless LAN (802.11ad)
TeraHertz / Tremendously High Frequency	THz, THF	12	300– 3,000 GHz	1mm – 0.1mm	Medical imaging to replace x-rays, ultrafast molecular dynamics, physics condensation, spectroscopy, domain terrain, TeraHertz computing / communications, remote sensing, amateur radio

Table 2. Table of ITU Radio Bands & Example Uses